

REMARKS/ARGUMENTS

Applicants hereby submit amendments to the Abstract and to the Specification starting on page 5, line 4 that were not entered on the last amendment/reply to office action because of improper form. The amendments now properly indicate insertions and deletions, and the ABSTRACT is supplied on its own sheet of paper. The paragraph starting on page 5, line 4 and the ABSTRACT have been amended to remove the word "bands" objected to by the Examiner in a previous office action and to use language clearly supported by the specification as originally filed, in particular page 8, lines 5-7.

Claims 45-55 and 57-71 are pending.

Claims 45-50, 52-55, 57, 58, 60, and 62-70 stand rejected under 35 U.S.C. § 102(e) or alternatively under 35 U.S.C. § 103(a) as anticipated by Handique (P/N 6,130,098). Claims 45-50, 52-55, 57, 58, 60, and 62-70 stand rejected under 35 U.S.C. § 103(a) as being obvious over Handique (P/N 6,130,098) in view of Wilding (P/N 5,587,128), or alternatively, over Wilding in view of Handique.

Applicants respectfully request reconsideration of these rejections in view of the following arguments, which as the Examiner requested, specifically address the valve disclosure of Handique column 10, lines 57-65.

Arguments for Patentability of Independent Claims 45 and 60 including specific consideration of the valve disclosure of Handique column 10, lines 57-65.

Column 10, lines 57-65 of Handique states:

"Diaphragm" as used herein refers to an element capable of being manipulated such that it can at least partially block the passage of fluid in a channel in one position (extended) and permit the flow of fluid in a channel in another position. An "actuating force" is a force that is capable of extending a diaphragm. A "valve seat" is an element designed to accept a portion of the diaphragm when extended. A "movement means" is a

means capable of moving liquefied meltable material (e.g., force air, magnetic field, etc.).

Handique thus discloses that a diaphragm valve is known in the art and provides a definition of such a diaphragm valve. This disclosure does not anticipate Applicants' invention as recited in claims 45 and 60. Stated another way, Applicants are not claiming that they invented the diaphragm valve, they are claiming the device and method recited in claims 45 and 60, and these claims are not anticipated by Handique or its definition of a diaphragm valve in Column 10, lines 57-65.

In particular, Applicants submit that independent claim 45 is patentable over Handique alone or in combination with Wilding because no combination of these references teaches a device having:

at least one valve in the transition region for controlling fluid flow
between the reaction chamber and the separation channel.

In Fig. 1, Handique shows a device having a reaction chamber connected to an electrophoresis module, but no valve is shown in the region connecting the reaction chamber to the electrophoresis module. In fact, there are no valves shown in Fig. 1. Even though Column 10, lines 57-65 provides a definition of a diaphragm valve, this certainly does not teach that such a valve should be placed in the device of Fig. 1, because Handique does not teach that there should be any valves in the device of Fig. 1.

Instead, Handique teaches away from placing valves in the device of Fig. 1. In the section of the specification (Col. 13, lines 61-66) following the description of Fig. 1, when describing how discrete droplets are created and moved through the device, Handique states: "The present invention contemplates methods, compositions and devices for the creation of microdroplets of discrete (i.e., controlled and predetermined) size. The present invention contemplates the use of selective hydrophobic coatings to develop a liquid-sample injection and motion system that does not require the use of valves." Thus, Handique fails to teach or suggest that there should be any valves in the device of Fig. 1, much less that there should be a valve in the transition region for controlling fluid flow between the reaction chamber and the separation channel, as explicitly recited in claim 45.

It does not matter if Handique provides a definition of a diaphragm valve in column 10, lines 57-65 if no valves are present in the device of Fig. 1. Fig. 1 does not anticipate Applicants' claim 45 or 60. The place where Handique does show a valve is Fig. 13. In Fig. 13, Handique shows a different device having a valve in a side channel connecting to a main channel. This showing of a valve in a side channel in the device of Fig. 13 does not fairly teach or suggest Applicants' device as recited in claim 45 because Handique only teaches placing a valve in a side channel in the device of Fig. 13, which device lacks many of the other elements of Applicants' claim 45. There is no showing in Fig. 13, or anywhere else in Handique, of a valve in a transition region for controlling fluid flow between a reaction chamber and a separation channel, as recited in claim 45. Further, the placement of a valve in a side channel of the device of Fig. 13 does not teach or suggest the placing of a valve in the region of the different device of Fig. 1 that connects the reaction chamber to the electrophoresis module.

The Wilding reference also fails to teach or suggest a device having a valve in a transition region that connects a reaction chamber to a separation channel. Wilding therefore fails to remedy the shortcomings of Handique in teaching Applicants' device as recited in claim 45. Thus, neither Handique nor any combination of Handique and Wilding anticipates Applicants' invention as recited in claim 45.

Similarly, claim 60 recites at least one valve in the transition region and the steps of subjecting the sample to a reaction while the valve remains closed and opening the valve in the transition region to allow injection of a sample plug into the separation region. Neither Handique nor Wilding fairly teach or suggest these steps. Thus, neither Handique nor any combination of Handique and Wilding anticipates Applicants' invention as recited in claim 60.

For at least the foregoing reasons, independent claims 45 and 60 and claims 46-59 and 61-71 depending therefrom are patentable.

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CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



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